

SEQUENCE LISTING

<110> Regents of the University of Minnesota, et al.

5 <120> DNA encoding methymycin and pikromycin

<130> 600.438WO1

10 <150> US 09/105,537

<151> 1998-06-26

<160> 53

15 <170> FastSEQ for Windows Version 3.0

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<211> 15872

<212> DNA

20 <213> Streptomyces venezuelae

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<211> 5215

<212> PRT

15 <213> Streptomyces venezuelae

<400> 2

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20 25 30
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35 40 45
Ala Asp Ala Glu Glu Pro Ala Glu Ser Gly Val Arg Arg Gly Gly Phe
25 50 55 60
Leu Asp Ser Leu Asp Leu Phe Asp Ala Ala Phe Phe Gly Ile Ser Pro
65 70 75 80
Arg Glu Ala Ala Ala Met Asp Pro Gln Gln Arg Leu Val Leu Glu Leu
85 90 95
30Ala Trp Glu Ala Leu Glu Asp Ala Gly Ile Val Pro Gly Thr Leu Ala
100 105 110
Gly Ser Arg Thr Ala Val Phe Val Gly Thr Leu Arg Asp Asp Tyr Thr
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Ser Leu Leu Tyr Gln His Gly Glu Gln Ala Ile Thr Gln His Thr Met
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Gly Leu Gln Gly Pro Ser Leu Thr Val Asp Ala Ala Gln Ser Ser Ser
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	Tyr Thr Phe Asp Ala Arg Ala Asn Gly Phe Val Arg Gly Glu Gly Gly		
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	Arg Glu Ala Tyr Arg Lys Ala Ala Leu Asp Pro Ser Ala Val Gln Tyr		
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	Leu Pro Phe Val Val Thr Gly Arg Gly Gly Glu Ala Leu Arg Ala Gln		
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00988334-11901

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	Val	Ala	Glu	Leu	Leu	Arg	Glu	Gln	Gly	Arg	Arg	Thr	Lys	Arg	Leu	Ser
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	Val	Ser	His	Ala	Phe	His	Ser	Pro	Leu	Met	Glu	Pro	Met	Leu	Asp	Asp
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0988334 11901

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	Leu Asp Leu Thr Ala Tyr Thr Gln Pro Ala Leu Phe Ala Phe Glu Val		
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	Gly Ala Asp Thr Leu Ala Glu Ile Arg Leu Pro Ala Ala Gln His Glu		
5	2130	2135	2140
	Ser Ala Gly Leu Phe Gly Val His Pro Ala Leu Leu Asp Ala Ala Leu		
	2145	2150	2155
	His Pro Ile Val Leu Glu Gly Asn Ser Ala Ala Gly Ala Cys Asp Ala		2160
	2165	2170	2175
10	Asp Thr Asp Ala Thr Asp Arg Ile Arg Leu Pro Phe Ala Trp Ala Gly		
	2180	2185	2190
	Val Thr Leu His Ala Glu Gly Ala Thr Ala Leu Arg Val Arg Ile Thr		
	2195	2200	2205
	Pro Thr Gly Pro Asp Thr Val Thr Leu Arg Leu Thr Asp Thr Thr Gly		
15	2210	2215	2220
	Ala Pro Val Ala Thr Val Glu Ser Leu Thr Leu Arg Ala Val Ala Lys		
	2225	2230	2235
	Asp Arg Leu Gly Thr Thr Ala Gly Arg Val Asp Asp Ala Leu Phe Thr		
	2245	2250	2255
20	Val Val Trp Thr Glu Thr Gly Thr Pro Glu Pro Ala Gly Arg Gly Ala		
	2260	2265	2270
	Val Glu Val Glu Glu Leu Val Asp Leu Ala Gly Leu Gly Asp Leu Val		
	2275	2280	2285
	Glu Leu Gly Ala Ala Asp Val Val Leu Arg Ala Asp Arg Trp Thr Leu		
25	2290	2295	2300
	Asp Gly Asp Pro Ser Ala Ala Ala Arg Thr Ala Val Arg Arg Thr Leu		
	2305	2310	2315
	Ala Ile Val Gln Glu Phe Leu Ser Glu Pro Arg Phe Asp Gly Ser Arg		
	2325	2330	2335
30	Leu Val Cys Val Thr Arg Gly Ala Val Ala Ala Leu Pro Gly Glu Asp		
	2340	2345	2350
	Val Thr Ser Leu Ala Thr Gly Pro Leu Trp Gly Leu Val Arg Ser Ala		
	2355	2360	2365
	Gln Ser Glu Asn Pro Gly Arg Leu Phe Leu Leu Asp Leu Gly Glu Gly		
35	2370	2375	2380
	Glu Gly Glu Arg Asp Gly Ala Glu Glu Leu Ile Arg Ala Ala Thr Ala		
	2385	2390	2395
	Gly Asp Glu Pro Gln Leu Ala Ala Arg Asp Gly Arg Leu Leu Ala Pro		2400
	2405	2410	2415
40	Arg Leu Ala Arg Thr Ala Ala Leu Ser Ser Glu Asp Thr Ala Gly Gly		

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	5925	5930	5935
Ile Ala Ala Ala Tyr Val Ala Gly Ala Leu Thr Leu Asp Asp Ala Ala			
	5940	5945	5950
Arg Val Val Thr Leu Arg Ser Lys Ser Ile Ala Ala His Leu Ala Gly			
5	5955	5960	5965
Lys Gly Gly Met Ile Ser Leu Ala Leu Ser Glu Glu Ala Thr Arg Gln			
	5970	5975	5980
Arg Ile Glu Asn Leu His Gly Leu Ser Ile Ala Ala Val Asn Gly Pro			
	5985	5990	5995
10 Thr Ala Thr Val Val Ser Gly Asp Pro Thr Gln Ile Gln Glu Leu Ala			
	6005	6010	6015
Gln Ala Cys Glu Ala Asp Gly Val Arg Ala Arg Ile Ile Pro Val Asp			
	6020	6025	6030
Tyr Ala Ser His Ser Ala His Val Glu Thr Ile Glu Ser Glu Leu Ala			
15	6035	6040	6045
Glu Val Leu Ala Gly Leu Ser Pro Arg Thr Pro Glu Val Pro Phe Phe			
	6050	6055	6060
Ser Thr Leu Glu Gly Ala Trp Ile Thr Glu Pro Val Leu Asp Gly Thr			
	6065	6070	6075
20 Tyr Trp Tyr Arg Asn Leu Arg His Arg Val Gly Phe Ala Pro Ala Val			
	6085	6090	6095
Glu Thr Leu Ala Thr Asp Glu Gly Phe Thr His Phe Ile Glu Val Ser			
	6100	6105	6110
Ala His Pro Val Leu Thr Met Thr Leu Pro Glu Thr Val Thr Gly Leu			
25	6115	6120	6125
Gly Thr Leu Arg Arg Glu Gln Gly Gly Gln Glu Arg Leu Val Thr Ser			
	6130	6135	6140
Leu Ala Glu Ala Trp Thr Asn Gly Leu Thr Ile Asp Trp Ala Pro Val			
	6145	6150	6155
30 Leu Pro Thr Ala Thr Gly His His Pro Glu Leu Pro Thr Tyr Ala Phe			
	6165	6170	6175
Gln Arg Arg His Tyr Trp Leu His Asp Ser Pro Ala Val Gln Gly Ser			
	6180	6185	6190
Val Gln Asp Ser Trp Arg Tyr Arg Ile Asp Trp Lys Arg Leu Ala Val			
35	6195	6200	6205
Ala Asp Ala Ser Glu Arg Ala Gly Leu Ser Gly Arg Trp Leu Val Val			
	6210	6215	6220
Val Pro Glu Asp Arg Ser Ala Glu Ala Ala Pro Val Leu Ala Ala Leu			
	6225	6230	6235
40 Ser Gly Ala Gly Ala Asp Pro Val Gln Leu Asp Val Ser Pro Leu Gly			

	6245	6250	6255
	Asp Arg Gln Arg Leu Ala Ala Thr Leu Gly Glu Ala Leu Ala Ala Ala		
	6260	6265	6270
	Gly Gly Ala Val Asp Gly Val Leu Ser Leu Leu Ala Trp Asp Glu Ser		
5	6275	6280	6285
	Ala His Pro Gly His Pro Ala Pro Phe Thr Arg Gly Thr Gly Ala Thr		
	6290	6295	6300
	Leu Thr Leu Val Gln Ala Leu Glu Asp Ala Gly Val Ala Ala Pro Leu		
	6305	6310	6315
10	Trp Cys Val Thr His Gly Ala Val Ser Val Gly Arg Ala Asp His Val		
	6325	6330	6335
	Thr Ser Pro Ala Gln Ala Met Val Trp Gly Met Gly Arg Val Ala Ala		
	6340	6345	6350
	Leu Glu His Pro Glu Arg Trp Gly Gly Leu Ile Asp Leu Pro Ser Asp		
15	6355	6360	6365
	Ala Asp Arg Ala Ala Leu Asp Arg Met Thr Thr Val Leu Ala Gly Gly		
	6370	6375	6380
	Thr Gly Glu Asp Gln Val Ala Val Arg Ala Ser Gly Leu Leu Ala Arg		
	6385	6390	6395
20	Arg Leu Val Arg Ala Ser Leu Pro Ala His Gly Thr Ala Ser Pro Trp		
	6405	6410	6415
	Trp Gln Ala Asp Gly Thr Val Leu Val Thr Gly Ala Glu Glu Pro Ala		
	6420	6425	6430
	Ala Ala Glu Ala Ala Arg Arg Leu Ala Arg Asp Gly Ala Gly His Leu		
25	6435	6440	6445
	Leu Leu His Thr Thr Pro Ser Gly Ser Glu Gly Ala Glu Gly Thr Ser		
	6450	6455	6460
	Gly Ala Ala Glu Asp Ser Gly Leu Ala Gly Leu Val Ala Glu Leu Ala		
	6465	6470	6475
30	Asp Leu Gly Ala Thr Ala Thr Val Val Thr Cys Asp Leu Thr Asp Ala		
	6485	6490	6495
	Glu Ala Ala Ala Arg Leu Leu Ala Gly Val Ser Asp Ala His Pro Leu		
	6500	6505	6510
	Ser Ala Val Leu His Leu Pro Pro Thr Val Asp Ser Glu Pro Leu Ala		
35	6515	6520	6525
	Ala Thr Asp Ala Asp Ala Leu Ala Arg Val Val Thr Ala Lys Ala Thr		
	6530	6535	6540
	Ala Ala Leu His Leu Asp Arg Leu Leu Arg Glu Ala Ala Ala Gly		
	6545	6550	6555
40	Gly Arg Pro Pro Val Leu Val Leu Phe Ser Ser Val Ala Ala Ile Trp		

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	6885	6890	6895
	Met Asp Pro Gln Gln Arg Leu Leu Leu Glu Thr Ser Trp Glu Ala Val		
	6900	6905	6910
	Glu Asp Ala Gly Ile Asp Pro Thr Ser Leu Gln Gly Gln Gln Val Gly		
5	6915	6920	6925
	Val Phe Ala Gly Thr Asn Gly Pro His Tyr Glu Pro Leu Leu Arg Asn		
	6930	6935	6940
	Thr Ala Glu Asp Leu Glu Gly Tyr Val Gly Thr Gly Asn Ala Ala Ser		
	6945	6950	6955
10	Ile Met Ser Gly Arg Val Ser Tyr Thr Leu Gly Leu Glu Gly Pro Ala		
	6965	6970	6975
	Val Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Leu His Leu		
	6980	6985	6990
	Ala Val Gln Ala Leu Arg Lys Gly Glu Cys Gly Leu Ala Leu Ala Gly		
15	6995	7000	7005
	Gly Val Thr Val Met Ser Thr Pro Thr Thr Phe Val Glu Phe Ser Arg		
	7010	7015	7020
	Gln Arg Gly Leu Ala Glu Asp Gly Arg Ser Lys Ala Phe Ala Ala Ser		
	7025	7030	7035
20	Ala Asp Gly Phe Gly Pro Ala Glu Gly Val Gly Met Leu Leu Val Glu		
	7045	7050	7055
	Arg Leu Ser Asp Ala Arg Arg Asn Gly His Arg Val Leu Ala Val Val		
	7060	7065	7070
	Arg Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala		
25	7075	7080	7085
	Pro Asn Gly Pro Ser Gln Gln Arg Val Ile Arg Arg Ala Leu Ala Asp		
	7090	7095	7100
	Ala Arg Leu Thr Thr Ala Asp Val Asp Val Val Glu Ala His Gly Thr		
	7105	7110	7115
30	Gly Thr Arg Leu Gly Asp Pro Ile Glu Ala Gln Ala Leu Ile Ala Thr		
	7125	7130	7135
	Tyr Gly Gln Gly Arg Asp Thr Glu Gln Pro Leu Arg Leu Gly Ser Leu		
	7140	7145	7150
	Lys Ser Asn Ile Gly His Thr Gln Ala Ala Ala Gly Val Ser Gly Ile		
35	7155	7160	7165
	Ile Lys Met Val Gln Ala Met Arg His Gly Val Leu Pro Lys Thr Leu		
	7170	7175	7180
	His Val Asp Arg Pro Ser Asp Gln Ile Asp Trp Ser Ala Gly Thr Val		
	7185	7190	7195
40	Glu Leu Leu Thr Glu Ala Met Asp Trp Pro Arg Lys Gln Glu Gly Gly		
	7200		

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	7205	7210	7215
	Leu Arg Arg Ala Ala Val Ser Ser Phe Gly Ile Ser Gly Thr Asn Ala		
	7220	7225	7230
	His Ile Val Leu Glu Glu Ala Pro Val Asp Glu Asp Ala Pro Ala Asp		
5	7235	7240	7245
	Glu Pro Ser Val Gly Gly Val Val Pro Trp Leu Val Ser Ala Lys Thr		
	7250	7255	7260
	Pro Ala Ala Leu Asp Ala Gln Ile Gly Arg Leu Ala Ala Phe Ala Ser		
	7265	7270	7275
10	Gln Gly Arg Thr Asp Ala Ala Asp Pro Gly Ala Val Ala Arg Val Leu		7280
	7285	7290	7295
	Ala Gly Gly Arg Ala Gln Phe Glu His Arg Ala Val Ala Leu Gly Thr		
	7300	7305	7310
	Gly Gln Asp Asp Leu Ala Ala Ala Leu Ala Ala Pro Glu Gly Leu Val		
15	7315	7320	7325
	Arg Gly Val Ala Ser Gly Val Gly Arg Val Ala Phe Val Phe Pro Gly		
	7330	7335	7340
	Gln Gly Thr Gln Trp Ala Gly Met Gly Ala Glu Leu Leu Asp Val Ser		
	7345	7350	7355
20	Lys Glu Phe Ala Ala Ala Met Ala Glu Cys Glu Ala Ala Leu Ala Pro		7360
	7365	7370	7375
	Tyr Val Asp Trp Ser Leu Glu Ala Val Val Arg Gln Ala Pro Gly Ala		
	7380	7385	7390
	Pro Thr Leu Glu Arg Val Asp Val Val Gln Pro Val Thr Phe Ala Val		
25	7395	7400	7405
	Met Val Ser Leu Ala Lys Val Trp Gln His His Gly Val Thr Pro Gln		
	7410	7415	7420
	Ala Val Val Gly His Ser Gln Gly Glu Ile Ala Ala Ala Tyr Val Ala		
	7425	7430	7435
30	Gly Ala Leu Ser Leu Asp Asp Ala Ala Arg Val Val Thr Leu Arg Ser		7440
	7445	7450	7455
	Lys Ser Ile Gly Ala His Leu Ala Gly Gln Gly Gly Met Leu Ser Leu		
	7460	7465	7470
	Ala Leu Ser Glu Ala Ala Val Val Glu Arg Leu Ala Gly Phe Asp Gly		
35	7475	7480	7485
	Leu Ser Val Ala Ala Val Asn Gly Pro Thr Ala Thr Val Val Ser Gly		
	7490	7495	7500
	Asp Pro Thr Gln Ile Gln Glu Leu Ala Gln Ala Cys Glu Ala Asp Gly		
	7505	7510	7515
40	Val Arg Ala Arg Ile Ile Pro Val Asp Tyr Ala Ser His Ser Ala His		7520

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	7525	7530	7535
	Val Glu Thr Ile Glu Ser Glu Leu Ala Asp Val Leu Ala Gly Leu Ser		
	7540	7545	7550
	Pro Gln Thr Pro Gln Val Pro Phe Phe Ser Thr Leu Glu Gly Ala Trp		
5	7555	7560	7565
	Ile Thr Glu Pro Ala Leu Asp Gly Gly Tyr Trp Tyr Arg Asn Leu Arg		
	7570	7575	7580
	His Arg Val Gly Phe Ala Pro Ala Val Glu Thr Leu Ala Thr Asp Glu		
	7585	7590	7595
10	Gly Phe Thr His Phe Val Glu Val Ser Ala His Pro Val Leu Thr Met		
	7605	7610	7615
	Ala Leu Pro Glu Thr Val Thr Gly Leu Gly Thr Leu Arg Arg Asp Asn		
	7620	7625	7630
	Gly Gly Gln His Arg Leu Thr Thr Ser Leu Ala Glu Ala Trp Ala Asn		
15	7635	7640	7645
	Gly Leu Thr Val Asp Trp Ala Ser Leu Leu Pro Thr Thr Thr Thr His		
	7650	7655	7660
	Pro Asp Leu Pro Thr Tyr Ala Phe Gln Thr Glu Arg Tyr Trp Pro Gln		
	7665	7670	7675
20	Pro Asp Leu Ser Ala Ala Gly Asp Ile Thr Ser Ala Gly Leu Gly Ala		
	7685	7690	7695
	Ala Glu His Pro Leu Leu Gly Ala Ala Val Ala Leu Ala Asp Ser Asp		
	7700	7705	7710
	Gly Cys Leu Leu Thr Gly Ser Leu Ser Leu Arg Thr His Pro Trp Leu		
25	7715	7720	7725
	Ala Asp His Ala Val Ala Gly Thr Val Leu Leu Pro Gly Thr Ala Phe		
	7730	7735	7740
	Val Glu Leu Ala Phe Arg Ala Gly Asp Gln Val Gly Cys Asp Leu Val		
	7745	7750	7755
30	Glu Glu Leu Thr Leu Asp Ala Pro Leu Val Leu Pro Arg Arg Gly Ala		
	7765	7770	7775
	Val Arg Val Gln Leu Ser Val Gly Ala Ser Asp Glu Ser Gly Arg Arg		
	7780	7785	7790
	Thr Phe Gly Leu Tyr Ala His Pro Glu Asp Ala Pro Gly Glu Ala Glu		
35	7795	7800	7805
	Trp Thr Arg His Ala Thr Gly Val Leu Ala Ala Arg Ala Asp Arg Thr		
	7810	7815	7820
	Ala Pro Val Ala Asp Pro Glu Ala Trp Pro Pro Pro Gly Ala Glu Pro		
	7825	7830	7835
40	Val Asp Val Asp Gly Leu Tyr Glu Arg Phe Ala Ala Asn Gly Tyr Gly		
			7840

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	7845	7850	7855
Tyr Gly Pro Leu Phe Gln Gly Val Arg Gly Val Trp Arg Arg Gly Asp			
	7860	7865	7870
Glu Val Phe Ala Asp Val Ala Leu Pro Ala Glu Val Ala Gly Ala Glu			
5	7875	7880	7885
Gly Ala Arg Phe Gly Leu His Pro Ala Leu Leu Asp Ala Ala Val Gln			
	7890	7895	7900
Ala Ala Gly Ala Gly Arg Gly Val Arg Arg Gly His Ala Ala Ala Val			
	7905	7910	7915
10 Arg Leu Glu Arg Asp Leu Leu Tyr Ala Val Gly Ala Thr Ala Leu Arg			
	7925	7930	7935
Val Arg Leu Ala Pro Ala Gly Pro Asp Thr Val Ser Val Ser Ala Ala			
	7940	7945	7950
Asp Ser Ser Gly Gln Pro Val Phe Ala Ala Asp Ser Leu Thr Val Leu			
15	7955	7960	7965
Pro Val Asp Pro Ala Gln Leu Ala Ala Phe Ser Asp Pro Thr Leu Asp			
	7970	7975	7980
Ala Leu His Leu Leu Glu Trp Thr Ala Trp Asp Gly Ala Ala Gln Ala			
	7985	7990	7995
20 Leu Pro Gly Ala Val Val Leu Gly Gly Asp Ala Asp Gly Leu Ala Ala			
	8005	8010	8015
Ala Leu Arg Ala Gly Gly Thr Glu Val Leu Ser Phe Pro Asp Leu Thr			
	8020	8025	8030
Asp Leu Val Glu Ala Val Asp Arg Gly Glu Thr Pro Ala Pro Ala Thr			
25	8035	8040	8045
Val Leu Val Ala Cys Pro Ala Ala Gly Pro Asp Gly Pro Glu His Val			
	8050	8055	8060
Arg Glu Ala Leu His Gly Ser Leu Ala Leu Met Gln Ala Trp Leu Ala			
	8065	8070	8075
30 Asp Glu Arg Phe Thr Asp Gly Arg Leu Val Leu Val Thr Arg Asp Ala			
	8085	8090	8095
Val Ala Ala Arg Ser Gly Asp Gly Leu Arg Ser Thr Gly Gln Ala Ala			
	8100	8105	8110
Val Trp Gly Leu Gly Arg Ser Ala Gln Thr Glu Ser Pro Gly Arg Phe			
35	8115	8120	8125
Val Leu Leu Asp Leu Ala Gly Glu Ala Arg Thr Ala Gly Asp Ala Thr			
	8130	8135	8140
Ala Gly Asp Gly Leu Thr Thr Gly Asp Ala Thr Val Gly Gly Thr Ser			
	8145	8150	8155
40 Gly Asp Ala Ala Leu Gly Ser Ala Leu Ala Thr Ala Leu Gly Ser Gly			
			8160

	8165				8170				8175									
	Glu	Pro	Gln	Leu	Ala	Leu	Arg	Asp	Gly	Ala	Leu	Leu	Val	Pro	Arg	Leu		
	8180								8185				8190					
	Ala	Arg	Ala	Ala	Ala	Pro	Ala	Ala	Ala	Asp	Gly	Leu	Ala	Ala	Ala	Asp		
5	8195								8200				8205					
	Gly	Leu	Ala	Ala	Leu	Pro	Leu	Pro	Ala	Ala	Pro	Ala	Leu	Trp	Arg	Leu		
	8210								8215				8220					
	Glu	Pro	Gly	Thr	Asp	Gly	Ser	Leu	Glu	Ser	Leu	Thr	Ala	Ala	Pro	Gly		
	8225				8230								8235				8240	
10	Asp	Ala	Glu	Thr	Leu	Ala	Pro	Glu	Pro	Leu	Gly	Pro	Gly	Gln	Val	Arg		
	8245								8250				8255					
	Ile	Ala	Ile	Arg	Ala	Thr	Gly	Leu	Asn	Phe	Arg	Asp	Val	Leu	Ile	Ala		
	8260								8265				8270					
	Leu	Gly	Met	Tyr	Pro	Asp	Pro	Ala	Leu	Met	Gly	Thr	Glu	Gly	Ala	Gly		
15	8275								8280				8285					
	Val	Val	Thr	Ala	Thr	Gly	Pro	Gly	Val	Thr	His	Leu	Ala	Pro	Gly	Asp		
	8290				8295								8300					
	Arg	Val	Met	Gly	Leu	Leu	Ser	Gly	Ala	Tyr	Ala	Pro	Val	Val	Val	Ala		
	8305				8310								8315				8320	
20	Asp	Ala	Arg	Thr	Val	Ala	Arg	Met	Pro	Glu	Gly	Trp	Thr	Phe	Ala	Gln		
	8325								8330				8335					
	Gly	Ala	Ser	Val	Pro	Val	Val	Phe	Leu	Thr	Ala	Val	Tyr	Ala	Leu	Arg		
	8340								8345				8350					
	Asp	Leu	Ala	Asp	Val	Lys	Pro	Gly	Glu	Arg	Leu	Leu	Val	His	Ser	Ala		
25	8355								8360				8365					
	Ala	Gly	Gly	Val	Gly	Met	Ala	Ala	Val	Gln	Leu	Ala	Arg	His	Trp	Gly		
	8370				8375								8380					
	Val	Glu	Val	His	Gly	Thr	Ala	Ser	His	Gly	Lys	Trp	Asp	Ala	Leu	Arg		
	8385				8390								8395				8400	
30	Ala	Leu	Gly	Leu	Asp	Asp	Ala	His	Ile	Ala	Ser	Ser	Arg	Thr	Leu	Asp		
	8405								8410				8415					
	Phe	Glu	Ser	Ala	Phe	Arg	Ala	Ala	Ser	Gly	Gly	Ala	Gly	Met	Asp	Val		
	8420								8425				8430					
	Val	Leu	Asn	Ser	Leu	Ala	Arg	Glu	Phe	Val	Asp	Ala	Ser	Leu	Arg	Leu		
35	8435								8440				8445					
	Leu	Gly	Pro	Gly	Gly	Arg	Phe	Val	Glu	Met	Gly	Lys	Thr	Asp	Val	Arg		
	8450				8455								8460					
	Asp	Ala	Glu	Arg	Val	Ala	Ala	Asp	His	Pro	Gly	Val	Gly	Tyr	Arg	Ala		
	8465				8470								8475				8480	
40	Phe	Asp	Leu	Gly	Glu	Ala	Gly	Pro	Glu	Arg	Ile	Gly	Glu	Met	Leu	Ala		

	8485	8490	8495
	Glu Val Ile Ala Leu Phe Glu Asp Gly Val Leu Arg His Leu Pro Val		
	8500	8505	8510
	Thr Thr Trp Asp Val Arg Arg Ala Arg Asp Ala Phe Arg His Val Ser		
5	8515	8520	8525
	Gln Ala Arg His Thr Gly Lys Val Val Leu Thr Met Pro Ser Gly Leu		
	8530	8535	8540
	Asp Pro Glu Gly Thr Val Leu Leu Thr Gly Gly Thr Gly Ala Leu Gly		
	8545	8550	8555
10	Gly Ile Val Ala Arg His Val Val Gly Glu Trp Gly Val Arg Arg Leu		
	8565	8570	8575
	Leu Leu Val Ser Arg Arg Gly Thr Asp Ala Pro Gly Ala Gly Glu Leu		
	8580	8585	8590
	Val His Glu Leu Glu Ala Leu Gly Ala Asp Val Ser Val Ala Ala Cys		
15	8595	8600	8605
	Asp Val Ala Asp Arg Glu Ala Leu Thr Ala Val Leu Asp Ser Ile Pro		
	8610	8615	8620
	Ala Glu His Pro Leu Thr Ala Val Val His Thr Ala Gly Val Leu Ser		
	8625	8630	8635
20	Asp Gly Thr Leu Pro Ser Met Thr Ala Glu Asp Val Glu His Val Leu		
	8645	8650	8655
	Arg Pro Lys Val Asp Ala Ala Phe Leu Leu Asp Glu Leu Thr Ser Thr		
	8660	8665	8670
	Pro Gly Tyr Asp Leu Ala Ala Phe Val Met Phe Ser Ser Ala Ala Ala		
25	8675	8680	8685
	Val Phe Gly Gly Ala Gly Gln Gly Ala Tyr Ala Ala Ala Asn Ala Thr		
	8690	8695	8700
	Leu Asp Ala Leu Ala Trp Arg Arg Arg Thr Ala Gly Leu Pro Ala Leu		
	8705	8710	8715
30	Ser Leu Gly Trp Gly Leu Trp Ala Glu Thr Ser Gly Met Thr Gly Gly		
	8725	8730	8735
	Leu Ser Asp Thr Asp Arg Ser Arg Leu Ala Arg Ser Gly Ala Thr Pro		
	8740	8745	8750
	Met Asp Ser Glu Leu Thr Leu Ser Leu Leu Asp Ala Ala Met Arg Arg		
35	8755	8760	8765
	Asp Asp Pro Ala Leu Val Pro Ile Ala Leu Asp Val Ala Ala Leu Arg		
	8770	8775	8780
	Ala Gln Gln Arg Asp Gly Met Leu Ala Pro Leu Leu Ser Gly Leu Thr		
	8785	8790	8795
40	Arg Gly Ser Arg Val Gly Gly Ala Pro Val Asn Gln Arg Arg Ala Ala		
	8800		

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	8805	8810	8815
	Ala Gly Gly Ala Gly Glu Ala Asp Thr Asp Leu Gly Gly Arg Leu Ala		
	8820	8825	8830
	Ala Met Thr Pro Asp Asp Arg Val Ala His Leu Arg Asp Leu Val Arg		
5	8835	8840	8845
	Thr His Val Ala Thr Val Leu Gly His Gly Thr Pro Ser Arg Val Asp		
	8850	8855	8860
	Leu Glu Arg Ala Phe Arg Asp Thr Gly Phe Asp Ser Leu Thr Ala Val		
	8865	8870	8875
	8880		
10	Glu Leu Arg Asn Arg Leu Asn Ala Ala Thr Gly Leu Arg Leu Pro Ala		
	8885	8890	8895
	Thr Leu Val Phe Asp His Pro Thr Pro Gly Glu Leu Ala Gly His Leu		
	8900	8905	8910
	Leu Asp Glu Leu Ala Thr Ala Ala Gly Gly Ser Trp Ala Glu Gly Thr		
15	8915	8920	8925
	Gly Ser Gly Asp Thr Ala Ser Ala Thr Asp Arg Gln Thr Thr Ala Ala		
	8930	8935	8940
	Leu Ala Glu Leu Asp Arg Leu Glu Gly Val Leu Ala Ser Leu Ala Pro		
	8945	8950	8955
	8960		
20	Ala Ala Gly Gly Arg Pro Glu Leu Ala Ala Arg Leu Arg Ala Leu Ala		
	8965	8970	8975
	Ala Ala Leu Gly Asp Asp Gly Asp Asp Ala Thr Asp Leu Asp Glu Ala		
	8980	8985	8990
	Ser Asp Asp Asp Leu Phe Ser Phe Ile Asp Lys Glu Leu Gly Asp Ser		
25	8995	9000	9005
	Asp Phe Met Ala Asn Asn Glu Asp Lys Leu Arg Asp Tyr Leu Lys Arg		
	9010	9015	9020
	Val Thr Ala Glu Leu Gln Gln Asn Thr Arg Arg Leu Arg Glu Ile Glu		
	9025	9030	9035
	9040		
30	Gly Arg Thr His Glu Pro Val Ala Ile Val Gly Met Ala Cys Arg Leu		
	9045	9050	9055
	Pro Gly Gly Val Ala Ser Pro Glu Asp Leu Trp Gln Leu Val Ala Gly		
	9060	9065	9070
	Asp Gly Asp Ala Ile Ser Glu Phe Pro Gln Asp Arg Gly Trp Asp Val		
35	9075	9080	9085
	Glu Gly Leu Tyr Asp Pro Asp Pro Asp Ala Ser Gly Arg Thr Tyr Cys		
	9090	9095	9100
	Arg Ser Gly Gly Phe Leu His Asp Ala Gly Glu Phe Asp Ala Asp Phe		
	9105	9110	9115
	9120		
40	Phe Gly Ile Ser Pro Arg Glu Ala Leu Ala Met Asp Pro Gln Gln Arg		

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					9125					9130					9135	
	Leu	Ser	Leu	Thr	Thr	Ala	Trp	Glu	Ala	Ile	Glu	Ser	Ala	Gly	Ile	Asp
					9140					9145					9150	
	Pro	Thr	Ala	Leu	Lys	Gly	Ser	Gly	Leu	Gly	Val	Phe	Val	Gly	Gly	Trp
5					9155					9160					9165	
	His	Thr	Gly	Tyr	Thr	Ser	Gly	Gln	Thr	Thr	Ala	Val	Gln	Ser	Pro	Glu
					9170					9175				9180		
	Leu	Glu	Gly	His	Leu	Val	Ser	Gly	Ala	Ala	Leu	Gly	Phe	Leu	Ser	Gly
	9185					9190					9195					9200
10	Arg	Ile	Ala	Tyr	Val	Leu	Gly	Thr	Asp	Gly	Pro	Ala	Leu	Thr	Val	Asp
					9205						9210				9215	
	Thr	Ala	Cys	Ser	Ser	Ser	Leu	Val	Ala	Leu	His	Leu	Ala	Val	Gln	Ala
					9220					9225				9230		
	Leu	Arg	Lys	Gly	Glu	Cys	Asp	Met	Ala	Leu	Ala	Gly	Gly	Val	Thr	Val
15					9235					9240				9245		
	Met	Pro	Asn	Ala	Asp	Leu	Phe	Val	Gln	Phe	Ser	Arg	Gln	Arg	Gly	Leu
					9250					9255				9260		
	Ala	Ala	Asp	Gly	Arg	Ser	Lys	Ala	Phe	Ala	Thr	Ser	Ala	Asp	Gly	Phe
	9265					9270					9275					9280
20	Gly	Pro	Ala	Glu	Gly	Ala	Gly	Val	Leu	Leu	Val	Glu	Arg	Leu	Ser	Asp
					9285						9290				9295	
	Ala	Arg	Arg	Asn	Gly	His	Arg	Ile	Leu	Ala	Val	Val	Arg	Gly	Ser	Ala
					9300					9305				9310		
	Val	Asn	Gln	Asp	Gly	Ala	Ser	Asn	Gly	Leu	Thr	Ala	Pro	His	Gly	Pro
25					9315					9320				9325		
	Ser	Gln	Gln	Arg	Val	Ile	Arg	Arg	Ala	Leu	Ala	Asp	Ala	Arg	Leu	Ala
					9330					9335				9340		
	Pro	Gly	Asp	Val	Asp	Val	Val	Glu	Ala	His	Gly	Thr	Gly	Thr	Arg	Leu
	9345					9350					9355					9360
30	Gly	Asp	Pro	Ile	Glu	Ala	Gln	Ala	Leu	Ile	Ala	Thr	Tyr	Gly	Gln	Glu
					9365						9370				9375	
	Lys	Ser	Ser	Glu	Gln	Pro	Leu	Arg	Leu	Gly	Ala	Leu	Lys	Ser	Asn	Ile
					9380					9385				9390		
	Gly	His	Thr	Gln	Ala	Ala	Ala	Gly	Val	Ala	Gly	Val	Ile	Lys	Met	Val
35					9395					9400				9405		
	Gln	Ala	Met	Arg	His	Gly	Leu	Leu	Pro	Lys	Thr	Leu	His	Val	Asp	Glu
					9410					9415				9420		
	Pro	Ser	Asp	Gln	Ile	Asp	Trp	Ser	Ala	Gly	Thr	Val	Glu	Leu	Leu	Thr
	9425					9430					9435					9440
40	Glu	Ala	Val	Asp	Trp	Pro	Glu	Lys	Gln	Asp	Gly	Gly	Leu	Arg	Arg	Ala

	9445	9450	9455
Ala Val Ser Ser Phe Gly Ile Ser Gly Thr Asn Ala His Val Val Leu			
	9460	9465	9470
Glu Glu Ala Pro Ala Val Glu Asp Ser Pro Ala Val Glu Pro Pro Ala			
5	9475	9480	9485
Gly Gly Gly Val Val Pro Trp Pro Val Ser Ala Lys Thr Pro Ala Ala			
	9490	9495	9500
Leu Asp Ala Gln Ile Gly Gln Leu Ala Ala Tyr Ala Asp Gly Arg Thr			
	9505	9510	9515
10 Asp Val Asp Pro Ala Val Ala Ala Arg Ala Leu Val Asp Ser Arg Thr			
	9525	9530	9535
Ala Met Glu His Arg Ala Val Ala Val Gly Asp Ser Arg Glu Ala Leu			
	9540	9545	9550
Arg Asp Ala Leu Arg Met Pro Glu Gly Leu Val Arg Gly Thr Ser Ser			
15	9555	9560	9565
Asp Val Gly Arg Val Ala Phe Val Phe Pro Gly Gln Gly Thr Gln Trp			
	9570	9575	9580
Ala Gly Met Gly Ala Glu Leu Leu Asp Ser Ser Pro Glu Phe Ala Ala			
	9585	9590	9595
20 Ser Met Ala Glu Cys Glu Thr Ala Leu Ser Arg Tyr Val Asp Trp Ser			
	9605	9610	9615
Leu Glu Ala Val Val Arg Gln Glu Pro Gly Ala Pro Thr Leu Asp Arg			
	9620	9625	9630
Val Asp Val Val Gln Pro Val Thr Phe Ala Val Met Val Ser Leu Ala			
25	9635	9640	9645
Lys Val Trp Gln His His Gly Ile Thr Pro Gln Ala Val Val Gly His			
	9650	9655	9660
Ser Gln Gly Glu Ile Ala Ala Ala Tyr Val Ala Gly Ala Leu Thr Leu			
	9665	9670	9675
30 Asp Asp Ala Ala Arg Val Val Thr Leu Arg Ser Lys Ser Ile Ala Ala			
	9685	9690	9695
His Leu Ala Gly Lys Gly Gly Met Ile Ser Leu Ala Leu Asp Glu Ala			
	9700	9705	9710
Ala Val Leu Lys Arg Leu Ser Asp Phe Asp Gly Leu Ser Val Ala Ala			
35	9715	9720	9725
Val Asn Gly Pro Thr Ala Thr Val Val Ser Gly Asp Pro Thr Gln Ile			
	9730	9735	9740
Glu Glu Leu Ala Arg Thr Cys Glu Ala Asp Gly Val Arg Ala Arg Ile			
	9745	9750	9755
40 Ile Pro Val Asp Tyr Ala Ser His Ser Arg Gln Val Glu Ile Ile Glu			
			9760

	9765	9770	9775
Lys Glu Leu Ala Glu Val Leu Ala Gly Leu Ala Pro Gln Ala Pro His			
	9780	9785	9790
Val Pro Phe Phe Ser Thr Leu Glu Gly Thr Trp Ile Thr Glu Pro Val			
5	9795	9800	9805
Leu Asp Gly Thr Tyr Trp Tyr Arg Asn Leu Arg His Arg Val Gly Phe			
	9810	9815	9820
Ala Pro Ala Val Glu Thr Leu Ala Val Asp Gly Phe Thr His Phe Ile			
	9825	9830	9835
10Glu Val Ser Ala His Pro Val Leu Thr Met Thr Leu Pro Glu Thr Val			
	9845	9850	9855
Thr Gly Leu Gly Thr Leu Arg Arg Glu Gln Gly Gly Gln Glu Arg Leu			
	9860	9865	9870
Val Thr Ser Leu Ala Glu Ala Trp Ala Asn Gly Leu Thr Ile Asp Trp			
15	9875	9880	9885
Ala Pro Ile Leu Pro Thr Ala Thr Gly His His Pro Glu Leu Pro Thr			
	9890	9895	9900
Tyr Ala Phe Gln Thr Glu Arg Phe Trp Leu Gln Ser Ser Ala Pro Thr			
	9905	9910	9915
20Ser Ala Ala Asp Asp Trp Arg Tyr Arg Val Glu Trp Lys Pro Leu Thr			
	9925	9930	9935
Ala Ser Gly Gln Ala Asp Leu Ser Gly Arg Trp Ile Val Ala Val Gly			
	9940	9945	9950
Ser Glu Pro Glu Ala Glu Leu Leu Gly Ala Leu Lys Ala Ala Gly Ala			
25	9955	9960	9965
Glu Val Asp Val Leu Glu Ala Gly Ala Asp Asp Asp Arg Glu Ala Leu			
	9970	9975	9980
Ala Ala Arg Leu Thr Ala Leu Thr Thr Gly Asp Gly Phe Thr Gly Val			
	9985	9990	9995
30Val Ser Leu Leu Asp Asp Leu Val Pro Gln Val Ala Trp Val Gln Ala			
	10005	10010	10015
Leu Gly Asp Ala Gly Ile Lys Ala Pro Leu Trp Ser Val Thr Gln Gly			
	10020	10025	10030
Ala Val Ser Val Gly Arg Leu Asp Thr Pro Ala Asp Pro Asp Arg Ala			
35	10035	10040	10045
Met Leu Trp Gly Leu Gly Arg Val Val Ala Leu Glu His Pro Glu Arg			
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Trp Ala Gly Leu Val Asp Leu Pro Ala Gln Pro Asp Ala Ala Ala Leu			
	0065	10070	10075
40Ala His Leu Val Thr Ala Leu Ser Gly Ala Thr Gly Glu Asp Gln Ile			
			10080

	10085	10090	10095
Ala Ile Arg Thr Thr Gly Leu His Ala Arg Arg Leu Ala Arg Ala Pro			
10100	10105	10110	
Leu His Gly Arg Arg Pro Thr Arg Asp Trp Gln Pro His Gly Thr Val			
5 10115	10120	10125	
Leu Ile Thr Gly Gly Thr Gly Ala Leu Gly Ser His Ala Ala Arg Trp			
10130	10135	10140	1
Met Ala His His Gly Ala Glu His Leu Leu Leu Val Ser Arg Ser Gly			
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10Glu Gln Ala Pro Gly Ala Thr Gln Leu Thr Ala Glu Leu Thr Ala Ser			
10165	10170	10175	
Gly Ala Arg Val Thr Ile Ala Ala Cys Asp Val Ala Asp Pro His Ala			
10180	10185	10190	
Met Arg Thr Leu Leu Asp Ala Ile Pro Ala Glu Thr Pro Leu Thr Ala			
15 10195	10200	10205	
Val Val His Thr Ala Gly Ala Pro Gly Gly Asp Pro Leu Asp Val Thr			
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Gly Pro Glu Asp Ile Ala Arg Ile Leu Gly Ala Lys Thr Ser Gly Ala			
0225	10230	10235	10240
20Glu Val Leu Asp Asp Leu Leu Arg Gly Thr Pro Leu Asp Ala Phe Val			
10245	10250	10255	
Leu Tyr Ser Ser Asn Ala Gly Val Trp Gly Ser Gly Ser Gln Gly Val			
10260	10265	10270	
Tyr Ala Ala Ala Asn Ala His Leu Asp Ala Leu Ala Ala Arg Arg Arg			
25 10275	10280	10285	
Ala Arg Gly Glu Thr Ala Thr Ser Val Ala Trp Gly Leu Trp Ala Gly			
10290	10295	10300	1
Asp Gly Met Gly Arg Gly Ala Asp Asp Ala Tyr Trp Gln Arg Arg Gly			
0305	10310	10315	10320
30Ile Arg Pro Met Ser Pro Asp Arg Ala Leu Asp Glu Leu Ala Lys Ala			
10325	10330	10335	
Leu Ser His Asp Glu Thr Phe Val Ala Val Ala Asp Val Asp Trp Glu			
10340	10345	10350	
Arg Phe Ala Pro Ala Phe Thr Val Ser Arg Pro Ser Leu Leu Leu Asp			
35 10355	10360	10365	
Gly Val Pro Glu Ala Arg Gln Ala Leu Ala Ala Pro Val Gly Ala Pro			
10370	10375	10380	1
Ala Pro Gly Asp Ala Ala Val Ala Pro Thr Gly Gln Ser Ser Ala Leu			
0385	10390	10395	10400
40Ala Ala Ile Thr Ala Leu Pro Glu Pro Glu Arg Arg Pro Ala Leu Leu			

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 Thr Leu Val Arg Thr His Ala Ala Val Leu Gly His Ser Ser Pro
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 Asp Arg Val Ala Pro Gly Arg Ala Phe Thr Glu Leu Gly Phe Asp Ser
 5 10435 10440 10445
 Leu Thr Ala Val Gln Leu Arg Asn Gln Leu Ser Thr Val Val Gly Asn
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 Arg Leu Pro Ala Thr Thr Val Phe Asp His Pro Thr Pro Ala Ala Leu
 0465 10470 10475 10480
 10Ala Ala His Leu His Glu Ala Tyr Leu Ala Pro Ala Glu Pro Ala Pro
 10485 10490 10495
 Thr Asp Trp Glu Gly Arg Val Arg Arg Ala Leu Ala Glu Leu Pro Leu
 10500 10505 10510
 Asp Arg Leu Arg Asp Ala Gly Val Leu Asp Thr Val Leu Arg Leu Thr
 15 10515 10520 10525
 Gly Ile Glu Pro Glu Pro Gly Ser Gly Gly Ser Asp Gly Gly Ala Ala
 10530 10535 10540 1
 Asp Pro Gly Ala Glu Pro Glu Ala Ser Ile Asp Asp Leu Asp Ala Glu
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 20Ala Leu Ile Arg Met Ala Leu Gly Pro Arg Asn Thr Met Thr Ser Ser
 10565 10570 10575
 Asn Glu Gln Leu Val Asp Ala Leu Arg Ala Ser Leu Lys Glu Asn Glu
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 Glu Leu Arg Lys Glu Ser Arg Arg Arg Ala Asp Arg Arg Gln Glu Pro
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 10610 10615 10620 1
 Pro Glu Asp Leu Trp Asp Ala Val Ala Ala Gly Lys Asp Leu Val Ser
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 30Glu Val Pro Glu Glu Arg Gly Trp Asp Ile Asp Ser Leu Tyr Asp Pro
 10645 10650 10655
 Val Pro Gly Arg Lys Gly Thr Thr Tyr Val Arg Asn Ala Ala Phe Leu
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 Asp Asp Ala Ala Gly Phe Asp Ala Ala Phe Phe Gly Ile Ser Pro Arg
 35 10675 10680 10685
 Glu Ala Leu Ala Met Asp Pro Gln Gln Arg Gln Leu Leu Glu Ala Ser
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 Trp Glu Val Phe Glu Arg Ala Gly Ile Asp Pro Ala Ser Val Arg Gly
 0705 10710 10715 10720
 40Thr Asp Val Gly Val Tyr Val Gly Cys Gly Tyr Gln Asp Tyr Ala Pro

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Asp Ile Arg Val Ala Pro Glu Gly Thr Gly Gly Tyr Val Val Thr Gly			
10740	10745	10750	
Asn Ser Ser Ala Val Ala Ser Gly Arg Ile Ala Tyr Ser Leu Gly Leu			
5 10755	10760	10765	
Glu Gly Pro Ala Val Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Val			
10770	10775	10780	1
Ala Leu His Leu Ala Leu Lys Gly Leu Arg Asn Gly Asp Cys Ser Thr			
0785	10790	10795	10800
10Ala Leu Val Gly Gly Val Ala Val Leu Ala Thr Pro Gly Ala Phe Ile			
10805	10810	10815	
Glu Phe Ser Ser Gln Gln Ala Met Ala Ala Asp Gly Arg Thr Lys Gly			
10820	10825	10830	
Phe Ala Ser Ala Ala Asp Gly Leu Ala Trp Gly Glu Gly Val Ala Val			
15 10835	10840	10845	
Leu Leu Leu Glu Arg Leu Ser Asp Ala Arg Arg Lys Gly His Arg Val			
10850	10855	10860	1
Leu Ala Val Val Arg Gly Ser Ala Ile Asn Gln Asp Gly Ala Ser Asn			
0865	10870	10875	10880
20Gly Leu Thr Ala Pro His Gly Pro Ser Gln Gln His Leu Ile Arg Gln			
10885	10890	10895	
Ala Leu Ala Asp Ala Arg Leu Thr Ser Ser Asp Val Asp Val Val Glu			
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Gly His Gly Thr Gly Thr Arg Leu Gly Asp Pro Ile Glu Ala Gln Ala			
25 10915	10920	10925	
Leu Leu Ala Thr Tyr Gly Gln Gly Arg Ala Pro Gly Gln Pro Leu Arg			
10930	10935	10940	1
Leu Gly Thr Leu Lys Ser Asn Ile Gly His Thr Gln Ala Ala Ser Gly			
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30Val Ala Gly Val Ile Lys Met Val Gln Ala Leu Arg His Gly Val Leu			
10965	10970	10975	
Pro Lys Thr Leu His Val Asp Glu Pro Thr Asp Gln Val Asp Trp Ser			
10980	10985	10990	
Ala Gly Ser Val Glu Leu Leu Thr Glu Ala Val Asp Trp Pro Glu Arg			
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Pro Gly Arg Leu Arg Arg Ala Gly Val Ser Ala Phe Gly Val Gly Gly			
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Thr Asn Ala His Val Val Leu Glu Glu Ala Pro Ala Val Glu Glu Ser			
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40Pro Ala Val Glu Pro Pro Ala Gly Gly Gly Val Val Pro Trp Pro Val			

	11045	11050	11055
Ser Ala Lys Thr Ser Ala Ala Leu Asp Ala Gln Ile Gly Gln Leu Ala			
	11060	11065	11070
Ala Tyr Ala Glu Asp Arg Thr Asp Val Asp Pro Ala Val Ala Ala Arg			
5	11075	11080	11085
Ala Leu Val Asp Ser Arg Thr Ala Met Glu His Arg Ala Val Ala Val			
	11090	11095	11100
Gly Asp Ser Arg Glu Ala Leu Arg Asp Ala Leu Arg Met Pro Glu Gly			
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10Leu Val Arg Gly Thr Val Thr Asp Pro Gly Arg Val Ala Phe Val Phe			
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Pro Gly Gln Gly Thr Gln Trp Ala Gly Met Gly Ala Glu Leu Leu Asp			
	11140	11145	11150
Ser Ser Pro Glu Phe Ala Ala Ala Met Ala Glu Cys Glu Thr Ala Leu			
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Ser Pro Tyr Val Asp Trp Ser Leu Glu Ala Val Val Arg Gln Ala Pro			
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Ser Ala Pro Thr Leu Asp Arg Val Asp Val Val Gln Pro Val Thr Phe			
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Pro Glu Ala Val Ile Gly His Ser Gln Gly Glu Ile Ala Ala Ala Tyr			
	11220	11225	11230
Val Ala Gly Ala Leu Thr Leu Asp Asp Ala Ala Arg Val Val Thr Leu			
25	11235	11240	11245
Arg Ser Lys Ser Ile Ala Ala His Leu Ala Gly Lys Gly Gly Met Ile			
	11250	11255	11260
Ser Leu Ala Leu Ser Glu Glu Ala Thr Arg Gln Arg Ile Glu Asn Leu			
1265	11270	11275	11280
30His Gly Leu Ser Ile Ala Ala Val Asn Gly Pro Thr Ala Thr Val Val			
	11285	11290	11295
Ser Gly Asp Pro Thr Gln Ile Gln Glu Leu Ala Gln Ala Cys Glu Ala			
	11300	11305	11310
Asp Gly Ile Arg Ala Arg Ile Ile Pro Val Asp Tyr Ala Ser His Ser			
35	11315	11320	11325
Ala His Val Glu Thr Ile Glu Asn Glu Leu Ala Asp Val Leu Ala Gly			
	11330	11335	11340
Leu Ser Pro Gln Thr Pro Gln Val Pro Phe Phe Ser Thr Leu Glu Gly			
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40Thr Trp Ile Thr Glu Pro Ala Leu Asp Gly Gly Tyr Trp Tyr Arg Asn			

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	Leu Arg His Arg Val Gly Phe Ala Pro Ala Val Glu Thr Leu Ala Thr		
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	Asp Glu Gly Phe Thr His Phe Ile Glu Val Ser Ala His Pro Val Leu		
5	11395	11400	11405
	Thr Met Thr Leu Pro Asp Lys Val Thr Gly Leu Ala Thr Leu Arg Arg		
	11410	11415	11420
	Glu Asp Gly Gly Gln His Arg Leu Thr Thr Ser Leu Ala Glu Ala Trp		1
	1425	11430	11435
			11440
10	Ala Asn Gly Leu Ala Leu Asp Trp Ala Ser Leu Leu Pro Ala Thr Gly		
	11445	11450	11455
	Ala Leu Ser Pro Ala Val Pro Asp Leu Pro Thr Tyr Ala Phe Gln His		
	11460	11465	11470
	Arg Ser Tyr Trp Ile Ser Pro Ala Gly Pro Gly Glu Ala Pro Ala His		
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	Thr Ala Ser Gly Arg Glu Ala Val Ala Glu Thr Gly Leu Ala Trp Gly		
	11490	11495	11500
			1
	Pro Gly Ala Glu Asp Leu Asp Glu Glu Gly Arg Arg Ser Ala Val Leu		
	1505	11510	11515
			11520
20	Ala Met Val Met Arg Gln Ala Ala Ser Val Leu Arg Cys Asp Ser Pro		
	11525	11530	11535
	Glu Glu Val Pro Val Asp Arg Pro Leu Arg Glu Ile Gly Phe Asp Ser		
	11540	11545	11550
	Leu Thr Ala Val Asp Phe Arg Asn Arg Val Asn Arg Leu Thr Gly Leu		
25	11555	11560	11565
	Gln Leu Pro Pro Thr Val Val Phe Gln His Pro Thr Pro Val Ala Leu		
	11570	11575	11580
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	Ala Glu Arg Ile Ser Asp Glu Leu Ala Glu Arg Asn Trp Ala Val Ala		
	1585	11590	11595
			11600
30	Glu Pro Ser Asp His Glu Gln Ala Glu Glu Glu Lys Ala Ala Ala Pro		
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	Ala Gly Ala Arg Ser Gly Ala Asp Thr Gly Ala Gly Ala Gly Met Phe		
	11620	11625	11630
	Arg Ala Leu Phe Arg Gln Ala Val Glu Asp Asp Arg Tyr Gly Glu Phe		
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	Leu Asp Val Leu Ala Glu Ala Ser Ala Phe Arg Pro Gln Phe Ala Ser		
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			11680
40	Pro Thr Asp Arg Ala Glu Gly Arg Ala Val Leu Val Gly Cys Thr Gly		

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	Phe Gln Glu Glu Arg Asp Phe Leu Ala Val Pro Leu Pro Gly Tyr Gly		
5	11715	11720	11725
	Thr Gly Thr Gly Thr Gly Thr Ala Leu Leu Pro Ala Asp Leu Asp Thr		
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	Ala Leu Asp Ala Gln Ala Arg Ala Ile Leu Arg Ala Ala Gly Asp Ala		1
	1745	11750	11755
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	Leu Ala Phe Arg Leu Glu Arg Ala His Gly Ala Pro Pro Ala Gly Ile		
	11780	11785	11790
	Val Leu Val Asp Pro Tyr Pro Pro Gly His Gln Glu Pro Ile Glu Val		
15	11795	11800	11805
	Trp Ser Arg Gln Leu Gly Glu Gly Leu Phe Ala Gly Glu Leu Glu Pro		
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	Met Ser Asp Ala Arg Leu Leu Ala Met Gly Arg Tyr Ala Arg Phe Leu		1
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20	Ala Gly Pro Arg Pro Gly Arg Ser Ser Ala Pro Val Leu Leu Val Arg		
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	Ala Ser Glu Pro Leu Gly Asp Trp Gln Glu Glu Arg Gly Asp Trp Arg		
	11860	11865	11870
	Ala His Trp Asp Leu Pro His Thr Val Ala Asp Val Pro Gly Asp His		
25	11875	11880	11885
	Phe Thr Met Met Arg Asp His Ala Pro Ala Val Ala Glu Ala Val Leu		
	11890	11895	11900
	Ser Trp Leu Asp Ala Ile Glu Gly Ile Glu Gly Ala Gly Lys Met Thr		1
	1905	11910	11915
30	Asp Arg Pro Leu Asn Val Asp Ser Gly Leu Trp Ile Arg Arg Phe His		
	11925	11930	11935
	Pro Ala Pro Asn Ser Ala Val Arg Leu Val Cys Leu Pro His Ala Gly		
	11940	11945	11950
	Gly Ser Ala Ser Tyr Phe Phe Arg Phe Ser Glu Glu Leu His Pro Ser		
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	Val Glu Ala Leu Ser Val Gln Tyr Pro Gly Arg Gln Asp Arg Arg Ala		
	11970	11975	11980
	Glu Pro Cys Leu Glu Ser Val Glu Glu Leu Ala Glu His Val Val Ala		1
	1985	11990	11995
40	Ala Thr Glu Pro Trp Trp Gln Glu Gly Arg Leu Ala Phe Phe Gly His		
			12000

098384 11901

	12005	12010	12015
	Ser Leu Gly Ala Ser Val Ala Phe Glu Thr Ala Arg Ile Leu Glu Gln		
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	Arg His Gly Val Arg Pro Glu Gly Leu Tyr Val Ser Gly Arg Arg Ala		
5	12035	12040	12045
	Pro Ser Leu Ala Pro Asp Arg Leu Val His Gln Leu Asp Asp Arg Ala		
	12050	12055	12060
	Phe Leu Ala Glu Ile Arg Arg Leu Ser Gly Thr Asp Glu Arg Phe Leu		1
	2065	12070	12075
			12080
10	Gln Asp Asp Glu Leu Leu Arg Leu Val Leu Pro Ala Leu Arg Ser Asp		
	12085	12090	12095
	Tyr Lys Ala Ala Glu Thr Tyr Leu His Arg Pro Ser Ala Lys Leu Thr		
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	Cys Pro Val Met Ala Leu Ala Gly Asp Arg Asp Pro Lys Ala Pro Leu		
15	12115	12120	12125
	Asn Glu Val Ala Glu Trp Arg Arg His Thr Ser Gly Pro Phe Cys Leu		
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	Arg Ala Tyr Ser Gly Gly His Phe Tyr Leu Asn Asp Gln Trp His Glu		1
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			12160
20	Ile Cys Asn Asp Ile Ser Asp His Leu Leu Val Thr Arg Gly Ala Pro		
	12165	12170	12175
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25	12195	1	

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<211> 415

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<213> Streptomyces venezuelae

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 35 40 45
 30 Asn Gly Gly Pro Leu Val Arg Glu Phe Glu Glu Arg Val Ala Gly Leu
 50 55 60
 Ala Gly Val Arg His Ala Val Ala Thr Cys Asn Ala Thr Ala Gly Leu
 65 70 75 80
 Gln Leu Leu Ala His Ala Ala Gly Leu Thr Gly Glu Val Ile Met Pro
 35 85 90 95
 Ser Met Thr Phe Ala Ala Thr Pro His Ala Leu Arg Trp Ile Gly Leu
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<212> PRT

<213> *Streptomyces venezuelae*

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 Leu Ala Ala Gly Gly Leu Val Pro Pro Asp Glu Ala Gly Thr Thr Ala
 35 40 45
 40 Arg His Leu Val Arg Leu Ala Val Arg Tyr Gly Asn Ser Pro Phe Thr

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	Arg	Glu	Asp	Tyr	Ser	Gly	Arg	Asp	Asp	Gly	Lys	Leu	Pro	Gln	Glu	Glu
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<213> Streptomyces venezuelae

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	Arg	Met	Gly	Phe	Ile	Asp	Ala	Glu	Ala	Cys	His	Gly	Leu	Gly	Glu	Gly
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<212> DNA

<213> Streptomyces venezuelae

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<213> Streptomyces venezuelae

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 20 25 30
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 35 40 45
 40 Ala Pro Val Asp Ala Asp Pro Arg Leu Arg Phe Val His Gly Asp Ile

098834 149
 10511 188660

50 55 60
 Arg Asp Ala Gly Leu Leu Ala Arg Glu Leu Arg Gly Val Asp Ala Ile
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 Ser Val Phe Thr Glu Thr Asn Val Gln Gly Thr Gln Thr Leu Leu Gln
 100 105 110
 Cys Ala Val Asp Ala Gly Val Gly Arg Val Val His Val Ser Thr Asp
 115 120 125
 10 Glu Val Tyr Gly Ser Ile Asp Ser Gly Ser Trp Thr Glu Ser Ser Pro
 130 135 140
 Leu Glu Pro Asn Ser Pro Tyr Ala Ala Ser Lys Ala Gly Ser Asp Leu
 145 150 155 160
 Val Ala Arg Ala Tyr His Arg Thr Tyr Gly Leu Asp Val Arg Ile Thr
 15 165 170 175
 Arg Cys Cys Asn Asn Tyr Gly Pro Tyr Gln His Pro Glu Lys Leu Ile
 180 185 190
 Pro Leu Phe Val Thr Asn Leu Leu Asp Gly Gly Thr Leu Pro Leu Tyr
 195 200 205
 20 Gly Asp Gly Ala Asn Val Arg Glu Trp Val His Thr Asp Asp His Cys
 210 215 220
 Arg Gly Ile Ala Leu Val Leu Ala Gly Gly Arg Ala Gly Glu Ile Tyr
 225 230 235 240
 His Ile Gly Gly Gly Leu Glu Leu Thr Asn Arg Glu Leu Thr Gly Ile
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 260 265 270
 Asp Arg Lys Gly His Asp Leu Arg Tyr Ser Leu Asp Gly Gly Glu Ile
 275 280 285
 30 Glu Arg Glu Leu Gly Tyr Arg Pro Gln Val Ser Phe Ala Asp Gly Leu
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 Ala Arg Thr Val Arg Trp Tyr Arg Glu Asn Arg Gly Trp Trp Glu Pro
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<212> DNA

<213> *Streptomyces venezuelae*

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<211> 379

<212> PRT

<213> *Streptomyces venezuelae*

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 35 Val Leu Asp Ser Gly Arg Tyr Leu Leu Gly Pro Glu Leu Glu Gly Phe
 35 40 45
 Glu Ala Glu Phe Ala Ala Tyr Cys Glu Thr Asp His Ala Val Gly Val
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 Asn Ser Gly Met Asp Ala Leu Gln Leu Ala Leu Arg Gly Leu Gly Ile
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<212> DNA

<213> Streptomyces venezuelae

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<211> 237

<212> PRT

<213> Streptomyces venezuelae

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30           35             40             45
Thr Gly Thr His Leu Glu His Phe Thr Lys Glu Phe Gly Asp Thr Ala
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Gly Leu Glu Leu Ser Glu Asp Met Leu Thr His Ala Arg Lys Arg Leu
  65             70             75             80
35 Pro Asp Ala Thr Leu His Gln Gly Asp Met Arg Asp Phe Arg Leu Gly
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Arg Lys Phe Ser Ala Val Val Ser Met Phe Ser Ser Val Gly Tyr Leu
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Lys Thr Thr Glu Glu Leu Gly Ala Val Ala Ser Phe Ala Glu His
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 5 Arg Thr Val Ala Arg Val Ser His Ser Val Arg Glu Gly Asn Ala Thr
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 His Phe Ser Asp Val His Leu Ile Thr Leu Phe His Gln Ala Glu Tyr
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 35 40 45
 Ala Ala Val Pro Val Gly Thr Asp His Leu Ile His Glu Tyr Arg Val
 50 55 60
 Arg Met Ala Gly Glu Pro Arg Pro Asn His Pro Ala Ile Ala Phe Asp
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 Glu Ala Arg Pro Glu Pro Leu Asp Trp Asp His Ala Leu Gly Ile Glu
 85 90 95
 Ala Ile Leu Ala Pro Tyr Phe His Leu Leu Ala Asn Asn Asp Ser Met
 100 105 110
 25 Val Asp Asp Leu Val Asp Phe Ala Arg Ser Trp Gln Pro Asp Leu Val
 115 120 125
 Leu Trp Glu Pro Thr Thr Tyr Ala Gly Ala Val Ala Ala Gln Val Thr
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 Gly Ala Ala His Ala Arg Val Leu Trp Gly Pro Asp Val Met Gly Ser
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 Ala Arg Arg Lys Phe Val Ala Leu Arg Asp Arg Gln Pro Pro Glu His
 165 170 175
 Arg Glu Asp Pro Thr Ala Glu Trp Leu Thr Trp Thr Leu Asp Arg Tyr
 180 185 190
 35 Gly Ala Ser Phe Glu Glu Glu Leu Leu Thr Gly Gln Phe Thr Ile Asp
 195 200 205
 Pro Thr Pro Pro Ser Leu Arg Leu Asp Thr Gly Leu Pro Thr Val Gly
 210 215 220
 Met Arg Tyr Val Pro Tyr Asn Gly Thr Ser Val Val Pro Asp Trp Leu
 40 225 230 235 240

009884 199

25

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15 <211> 402

<212> PRT

<213> Streptomyces venezuelae

<400> 22

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 25 35 40 45
 Thr Val Leu Arg Gly Gln Ala Asp Asp Pro Tyr Pro Ala Tyr Glu Arg
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 Val Arg Ala Arg Gly Ala Leu Ser Phe Ser Pro Thr Gly Ser Trp Val
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 30 Thr Ala Asp His Ala Leu Ala Ala Ser Ile Leu Cys Ser Thr Asp Phe
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 Gly Val Ser Gly Ala Asp Gly Val Pro Val Pro Gln Gln Val Leu Ser
 100 105 110
 Tyr Gly Glu Gly Cys Pro Leu Glu Arg Glu Gln Val Leu Pro Ala Ala
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 Gly Asp Val Pro Glu Gly Gly Gln Arg Ala Val Val Glu Gly Ile His
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 Arg Glu Thr Leu Glu Gly Leu Ala Pro Asp Pro Ser Ala Ser Tyr Ala
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 40 Phe Glu Leu Leu Gly Gly Phe Val Arg Pro Ala Val Thr Ala Ala Ala

1983-1984

165 170 175
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 10 Leu Gly Val Thr Ala Ala Val Gln Leu Thr Gly Asn Ala Val Leu Ala
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 Leu Leu Ala His Pro Glu Gln Trp Arg Glu Leu Cys Asp Arg Pro Gly
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 Leu Ala Ala Ala Val Glu Glu Thr Leu Arg Tyr Asp Pro Pro Val
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 Gln Leu Asp Ala Arg Val Val Arg Gly Glu Thr Glu Leu Ala Gly Arg
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 20 Arg Asp Pro Glu Val Phe Thr Asp Pro Glu Arg Phe Asp Leu Ala Arg
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 Pro Asp Ala Ala Ala His Leu Ala Leu His Pro Ala Gly Pro Tyr Gly
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 Pro Val Ala Ser Leu Val Arg Leu Gln Ala Glu Val Ala Leu Arg Thr
 25 355 360 365
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<210> 23

<211> 2430

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<212> DNA

<213> *Streptomyces venezuelae*

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	caggcgaaga	agaagctcgt	gggctacacg	aaggctctcg	tcgccgcggg	cgaggcgaag	2340
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<210> 24

<211> 809

<212> PRT

<213> Streptomyces venezuelae

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<400> 24

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35 40 45
Tyr Thr Ser Arg Ala Ala Glu Leu Val Ala Gln Met Thr Leu Asp Glu
50 55 60
15 Lys Ile Ser Phe Val His Trp Ala Leu Asp Pro Asp Arg Gln Asn Val
65 70 75 80
Gly Tyr Leu Pro Gly Val Pro Arg Leu Gly Ile Pro Glu Leu Arg Ala
85 90 95
Ala Asp Gly Pro Asn Gly Ile Arg Leu Val Gly Gln Thr Ala Thr Ala
20 100 105 110
Leu Pro Ala Pro Val Ala Leu Ala Ser Thr Phe Asp Asp Thr Met Ala
115 120 125
Asp Ser Tyr Gly Lys Val Met Gly Arg Asp Gly Arg Ala Leu Asn Gln
130 135 140
25 Asp Met Val Leu Gly Pro Met Met Asn Asn Ile Arg Val Pro His Gly
145 150 155 160
Gly Arg Asn Tyr Glu Thr Phe Ser Glu Asp Pro Leu Val Ser Ser Arg
165 170 175
Thr Ala Val Ala Gln Ile Lys Gly Ile Gln Gly Ala Gly Leu Met Thr
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Thr Ala Lys His Phe Ala Ala Asn Asn Gln Glu Asn Asn Arg Phe Ser
195 200 205
Val Asn Ala Asn Val Asp Glu Gln Thr Leu Arg Glu Ile Glu Phe Pro
210 215 220
35 Ala Phe Glu Ala Ser Ser Lys Ala Gly Ala Ala Ser Phe Met Cys Ala
225 230 235 240
Tyr Asn Gly Leu Asn Gly Lys Pro Ser Cys Gly Asn Asp Glu Leu Leu
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Asn Asn Val Leu Arg Thr Gln Trp Gly Phe Gln Gly Trp Val Met Ser
40 260 265 270

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Asp Trp Leu Ala Thr Pro Gly Thr Asp Ala Ile Thr Lys Gly Leu Asp
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 290 295 300
 5 Ser Pro Pro Ala Lys Phe Phe Gly Glu Ala Leu Lys Thr Ala Val Leu
 305 310 315 320
 Asn Gly Thr Val Pro Glu Ala Ala Val Thr Arg Ser Ala Glu Arg Ile
 325 330 335
 Val Gly Gln Met Glu Lys Phe Gly Leu Leu Leu Ala Thr Pro Ala Pro
 10 340 345 350
 Arg Pro Glu Arg Asp Lys Ala Gly Ala Gln Ala Val Ser Arg Lys Val
 355 360 365
 Ala Glu Asn Gly Ala Val Leu Leu Arg Asn Glu Gly Gln Ala Leu Pro
 370 375 380
 15 Leu Ala Gly Asp Ala Gly Lys Ser Ile Ala Val Ile Gly Pro Thr Ala
 385 390 395 400
 Val Asp Pro Lys Val Thr Gly Leu Gly Ser Ala His Val Val Pro Asp
 405 410 415
 Ser Ala Ala Ala Pro Leu Asp Thr Ile Lys Ala Arg Ala Gly Ala Gly
 20 420 425 430
 Ala Thr Val Thr Tyr Glu Thr Gly Glu Glu Thr Phe Gly Thr Gln Ile
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 Val Gln Leu Gly Ser His Thr Ile Glu Ala Gly Gln Val Tyr Gly Lys
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 545 550 555 560
 Ser Ala Arg Lys Ala Arg Thr Ala Val Val Phe Ala Tyr Asp Asp Gly
 565 570 575
 Thr Glu Gly Val Asp Arg Pro Asn Leu Ser Leu Pro Gly Thr Gln Asp
 40 580 585 590

"FOOT" 42233660

Lys Leu Ile Ser Ala Val Ala Asp Ala Asn Pro Asn Thr Ile Val Val
 595 600 605
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 5 Ala Val Leu Asp Met Trp Tyr Pro Gly Gln Ala Gly Ala Glu Ala Thr
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 Ala Ala Leu Leu Tyr Gly Asp Val Asn Pro Ser Gly Lys Leu Thr Gln
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 Ser Phe Pro Ala Ala Glu Asn Gln His Ala Val Ala Gly Asp Pro Thr
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 Ser Tyr Pro Gly Val Asp Asn Gln Gln Thr Tyr Arg Glu Gly Ile His
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 Val Gly Tyr Arg Trp Phe Asp Lys Glu Asn Val Lys Pro Leu Phe Pro
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 Val Val Arg Thr Ser Thr Gly Gly Leu Lys Val Thr Val Thr Val Arg
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 Asn Ser Gly Lys Arg Ala Gly Gln Glu Val Val Gln Ala Tyr Leu Gly
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 Ala Ser Pro Asn Val Thr Ala Pro Gln Ala Lys Lys Lys Leu Val Gly
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 Tyr Thr Lys Val Ser Leu Ala Ala Gly Glu Ala Lys Thr Val Thr Val
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 35 <220>
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Leu Leu Asp Val Ala Cys Gly Thr Gly

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5

<210> 26

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<213> Streptomyces venezuelae

10

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25	gccggcggca	gggactatga	ctcggagacg	agcagggccg	ccgtgcccgg	900
tacggcccca	cgcgcgggcg	cgaaccctgc	gcaccccgcg	cacaggtccg	gcagaccaag	960
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<211> 336

<212> PRT

<213> Streptomyces venezuelae

<400> 27

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15

Arg Arg Glu Leu Gly Gln Asn Phe Leu Gln Asp Asp Arg Ala Val Arg

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Asn Leu Val Thr His Val Glu Gly Asp Gly Arg Asn Val Leu Glu Ile

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Gly Pro Gly Lys Gly Ala Ile Thr Glu Glu Leu Val Arg Ser Phe Asp
 50 55 60
 Thr Val Thr Val Val Glu Met Asp Pro His Trp Ala Ala His Val Arg
 65 70 75 80
 5 Arg Lys Phe Glu Gly Glu Arg Val Thr Val Phe Gln Gly Asp Phe Leu
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 Asp Phe Arg Ile Pro Arg Asp Ile Asp Thr Val Val Gly Asn Val Pro
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 Phe Gly Ile Thr Thr Gln Ile Leu Arg Ser Leu Leu Glu Ser Thr Asn
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 Ala Gly Arg Ser Gly Gly Ser Leu Leu Thr Thr Ser Trp Ala Pro Trp
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 15 Tyr Glu Phe Ala Val His Asp Arg Val Arg Ala Ser Ser Phe Arg Pro
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 Met Pro Arg Val Asp Gly Gly Val Leu Thr Ile Arg Arg Arg Pro Gln
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 260 265 270
 Arg Met Pro Gly Gln Gly Gly Gly Ala Gly Gly Arg Asp Tyr Asp Ser
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<211> 969

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<213> Streptomyces venezuelae

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<211> 322

<212> PRT

25 <213> Streptomyces venezuelae

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 Leu Pro Leu Ser Arg His Gly Arg Pro Ile Thr Ala Val Glu Leu Asp
 35 50 55 60
 Gly Arg Arg Ala Gln Arg Leu Gly Ala Arg Thr Pro Gly His Val Thr
 65 70 75 80
 Val Val His His Asp Phe Leu Gln Tyr Pro Leu Pro Arg Asn Pro His
 85 90 95
 40 Val Val Val Gly Asn Val Pro Phe His Leu Thr Thr Ala Ile Met Arg

100 105 110
 Arg Leu Leu Asp Ala Gln His Trp His Thr Ala Val Leu Leu Val Gln
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 Trp Glu Val Ala Arg Arg Arg Ala Gly Val Gly Gly Ser Thr Leu Leu
 5 130 135 140
 Thr Ala Gly Trp Ala Pro Trp Tyr Glu Phe Asp Leu His Ser Arg Val
 145 150 155 160
 Pro Ala Arg Ala Phe Arg Pro Met Pro Gly Val Asp Gly Gly Val Leu
 165 170 175
 10 Ala Ile Arg Arg Arg Ser Ala Pro Leu Val Gly Gln Val Lys Thr Tyr
 180 185 190
 Gln Asp Phe Val Arg Gln Val Phe Thr Gly Lys Gly Asn Gly Leu Lys
 195 200 205
 Glu Ile Leu Arg Arg Thr Gly Arg Ile Ser Gln Arg Asp Leu Ala Thr
 15 210 215 220
 Trp Leu Arg Arg Asn Glu Ile Ser Pro His Ala Leu Pro Lys Asp Leu
 225 230 235 240
 Lys Pro Gly Gln Trp Ala Ser Leu Trp Glu Leu Thr Gly Gly Thr Ala
 245 250 255
 20 Asp Gly Ser Phe Asp Gly Thr Ala Gly Gly Gly Ala Ala Gly Ser His
 260 265 270
 Gly Ala Ala Arg Val Gly Ala Gly His Pro Gly Gly Arg Val Ser Ala
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 Ser Ala

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<210> 30
 <211> 13842
 <212> DNA
 <213> Streptomyces venezuelae

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1901

1981

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 Asp Trp Pro Asp Lys Gly Asp Gly Gly Leu Arg Arg Ala Ala Val Ser
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 35 Ser Phe Gly Val Ser Gly Thr Asn Ala His Val Val Leu Glu Glu Ala
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 Pro Ala Ala Glu Glu Thr Pro Ala Ser Glu Ala Thr Pro Ala Val Glu
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 Pro Ser Val Gly Ala Gly Leu Val Pro Trp Leu Val Ser Ala Lys Thr
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	Leu	Ser	Ile	Ala	Ala	Val	Asn	Gly	Pro	Thr	Ala	Thr	Val	Val	Ser	Gly
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 Gly Phe Thr His Phe Ile Glu Val Ser Ala His Pro Val Leu Thr Met
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 15 Arg Ile Asp Trp Lys Arg Leu Ala Val Ala Asp Ala Ser Glu Arg Ala
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 Gly Leu Ser Gly Arg Trp Leu Val Val Val Pro Glu Asp Arg Ser Ala
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 Glu Ala Ala Pro Val Leu Ala Ala Leu Ser Gly Ala Gly Ala Asp Pro
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 Thr Leu Gly Glu Ala Leu Ala Ala Ala Gly Gly Ala Val Asp Gly Val
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 1075 1080 1085
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098834 1191
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Pro Ala His Gly Thr Ala Ser Pro Trp Trp Gln Ala Asp Gly Thr Val
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Val Val Thr Cys Asp Leu Thr Asp Ala Glu Ala Ala Ala Arg Leu Leu
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 40 2085 2090 2095

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Leu Ala Ala Arg Leu Arg Ala Leu Ala Ala Ala Leu Gly Asp Asp Gly
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<212> PRT

<213> *Streptomyces venezuelae*

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 Ile Ser Pro Arg Glu Ala Leu Ala Met Asp Pro Gln Gln Arg Leu Ser
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T06T1 488860

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<212> DNA

20 <213> Streptomyces venezuelae

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<212> PRT

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 His Gly Val Leu Pro Lys Thr Leu His Val Asp Glu Pro Thr Asp Gln
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 Gly Val Gly Gly Thr Asn Ala His Val Val Leu Glu Glu Ala Pro Ala
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	Ala Thr Val Val Ser Gly Asp Pro Thr Gln Ile Gln Glu Leu Ala Gln		
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	Thr Leu Glu Gly Thr Trp Ile Thr Glu Pro Ala Leu Asp Gly Gly Tyr		
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T06TT 4888660

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	Pro Ala Thr Gly Ala Leu Ser Pro Ala Val Pro Asp Leu Pro Thr Tyr				
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	Ala Pro Ala His Thr Ala Ser Gly Arg Glu Ala Val Ala Glu Thr Gly				
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	Ala Ala Ala Pro Ala Gly Ala Arg Ser Gly Ala Asp Thr Gly Ala Gly				
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	Tyr Gly Glu Phe Leu Asp Val Leu Ala Glu Ala Ser Ala Phe Arg Pro				
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	Gln Phe Ala Ser Pro Glu Ala Cys Ser Glu Arg Leu Asp Pro Val Leu				
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	Leu Ala Gly Gly Pro Thr Asp Arg Ala Glu Gly Arg Ala Val Leu Val				
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	Gly Cys Thr Gly Thr Ala Ala Asn Gly Gly Pro His Glu Phe Leu Arg				
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 Asp Leu Asp Thr Ala Leu Asp Ala Gln Ala Arg Ala Ile Leu Arg Ala
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 Leu Leu Val Arg Ala Ser Glu Pro Leu Gly Asp Trp Gln Glu Glu Arg
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 Gly Lys
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 Gly Asp Glu Val Trp Leu Val Val Gly Tyr Asp Arg Ala Arg Ala Val
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 Leu Ala Asp Pro Arg Phe Ser Lys Asp Trp Arg Asn Ser Thr Thr Pro
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 85 90 95
 35 Pro Pro Arg His Thr Arg Leu Arg Lys Leu Val Ala Arg Glu Phe Thr
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 115 120 125
 Gly Leu Val Asp Ala Met Leu Ala Ala Pro Asp Gly Arg Ala Asp Leu
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Met Glu Ser Leu Ala Trp Pro Leu Pro Ile Thr Val Ile Ser Glu Leu
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 Leu Gly Val Pro Glu Pro Asp Arg Ala Ala Phe Arg Val Trp Thr Asp
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 Glu Met Ser Gly Tyr Leu Ser Arg Leu Ile Asp Ser Lys Arg Gly Gln
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 Asp Gly Glu Asp Leu Leu Ser Ala Leu Val Arg Thr Ser Asp Glu Asp
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 Gly Ser Arg Leu Thr Ser Glu Glu Leu Leu Gly Met Ala His Ile Leu
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 15 Tyr Ala Leu Leu Ser His Pro Asp Gln Leu Ala Ala Leu Arg Ala Asp
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 Met Thr Leu Leu Asp Gly Ala Val Glu Glu Met Leu Arg Tyr Glu Gly
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 Pro Val Glu Ser Ala Thr Tyr Arg Phe Pro Val Glu Pro Val Asp Leu
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<211> 45

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